

MONTHLY NOTICES

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No. 1.

WARREN DE LA RUE, Esq., Vice-President, in the Chair.

Lieut. W. H. Collins, R.E.;
 Rev. John Edwards; and
 Rev. Alphonso Matthey,

were balloted for and duly elected Fellows of the Society.

Solar Eclipse of August 7th, 1869.
 By R. T. Paine.

This eclipse was carefully observed by me at the Court House in Boonesboro, Boone County, Iowa, with my small telescope of $2\frac{1}{4}$ -in. aperture, power of 30, erect eye-piece, deep green screen. The latitude, $42^{\circ} 3' 4''$, was determined by me, by a few altitudes of *Altair*, which agreed well with each other, but *Polaris* was too faint to be used. The longitude was ascertained by my two chronometers, by comparison with the clock of the Observatory at Chicago, to be $6^{\text{h}} 15^{\text{m}} 34^{\text{s}}.97$; $25^{\text{m}} 7^{\text{s}}.64$ going to Boone, and $9^{\text{s}}.0$ returning from it to Chicago, which is in long. $5^{\text{h}} 5^{\text{m}} 26^{\text{s}}.65$ west from Greenwich. Both latitude and longitude of Boone are, therefore, considered as pretty well known.

The observations were good and the sky clear, although there was some haze.

The corona was good, but, independently of the red or rosy

flames, not, I think, as striking or magnificent as the one at Beaufort, S.C., on November 30th, 1834; moreover, the darkness was *not* as great. I used a lantern on both occasions to read off the chronometers at the second and third contacts, but it was *not* necessary on August 7th. As soon as the second contact took place at Boone the corona was seen, and then a *deep red* flame, a little to the left of the lowest part of the Moon, which remained quite steady to the third; two or three seconds later, two flames of a beautiful rose colour appeared on the left and upper part of the Moon, and continued upwards of a minute: as the Moon moved on, three or four *rosy* flames appeared on the right, which, just before the third contact, seemed to run together. About five minutes before the second, a brush of light descended from the upper crescent of the Sun, and at the *same time* a small part of the lower crescent was broken off, yet nothing of the kind was noticed after the third. The edge of the Moon was generally very sharply defined, but slight irregularities were seen before the second contact, of very short continuance. The red or rosy flames were so conspicuous that they were seen at once, without the assistance of even an opera-glass; but at Beaufort nothing of the kind was noticed, although α *Scorpii*, then (Nov. 30th) in conjunction with the Sun, and therefore only $4\frac{1}{3}^{\circ}$ distant, was seen as soon as the corona. This eclipse will return for the second time on December 22nd, 1870, total at Cadiz, Gibraltar, Syracuse, &c. At Beaufort, lat. $32^{\circ} 25' 57''$, long. $80^{\circ} 40'$, the interval between the second and third contacts was $1^h 49^s.6$, and the eclipse was quite central.

The total eclipse of June 16th, 1806, which occurred *here*, central, about half-an-hour before noon, was the finest in the United States in the nineteenth century. The duration of totality at Boston and at our neighbouring city, Salem (where it was observed with great care by the late Dr. Bowditch), was *five* minutes. The excitement about it was great indeed, yet no one saw any red flames, and Dr. Bowditch never gave the least hint that he saw any; and a very intelligent gentleman of Lynnfield, who saw that eclipse in that town, and distinctly recollects the phenomena attending it, and the last eclipse at Springfield, Illinois, tells me he is positive the darkness in June 1806 was much deeper, and that there were no flames, as he certainly must have seen them, as he easily did at Springfield. Yet at the second and third returns of the eclipse of 1806, in 1842, and 1860, these flames were generally observed. The fourth return on July 29th, 1878, will be central in the United States, in Colorado, Texas, &c., and will therefore, doubtless, be carefully observed by even a greater number than that of August last, although then the number of observers on the central line, or very near it, was not small.

The phases of the eclipse of August 7th, 1869, at Boonesboro, Iowa, lat. $42^{\circ} 3' 23''$, long. $93^{\circ} 53' 45''$, were as follows, by strict computation and observation:—

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	By computation.	By observation (Mean of two Chrons.)
	^h ^m ^s	^h ^m ^s
Beginning of Eclipse	3 40 37.6 M.T.	3 40 46.78
„ Totality	4 43 20.6	4 43 24.48 = +3.88
End of Totality	46 20.6	46 23.28 = +2.68
„ Eclipse	5 43 36.5	5 43 30.18
Duration of Totality	3 0.0	2 58.8

Boston. Oct. 2nd, 1869.

Solar Eclipse of August 7th, 1869. By E. D. Ashe,
Commander R.N.

(Extract from a Letter to Mr. De La Rue, dated Observatory, Quebec,
August 28, 1869.)

I hasten to communicate to you the result of the Canadian eclipse party that went to Jefferson, Iowa. It consisted of Mr. Douglas, Mr. Falconer, and myself. The funds would only admit of my taking the equatoreal of 8-inch aperture, 9 feet focus, therefore I leave to the American astronomers the description of the results obtained by the spectroscope, &c.

Jefferson is a little to the south of the central line of eclipse. The totality was a few seconds over three minutes. The morning was cloudy; about noon the Sun appeared, and although there were no clouds during the eclipse, still it was hazy.

The total eclipse began at 4^h 41^m 6^s, so the Sun was at a very good altitude.

I took several photographs of the partial eclipse, enlarged by an eye-piece to 3¼ inches; one shows distinctly a band of light round the limit of the Moon on the Sun. I was afraid of the hazy atmosphere, and altered my arrangements for taking photographs during totality with the eye-piece, and put in the tube fitted for taking the Sun in the principal focus; and had I not done so, the actinic power was so bad that I should have failed completely. In consequence of the change I had no wires to connect the protuberances with the axis of the Sun; but this is of no consequence, as the American party fifty miles to the southward have well determined their position.

I took four negatives* during totality with an exposure of 10^s, and when they are examined with a magnifying glass they are full of information.

* These are now in Mr. De La Rue's care.—ED.